ABSTRACT

A sense amplifier capable of performing high-speed data sense operation with lower power consumption using a minuscule signal from a memory cell even in a case where a memory array voltage is reduced. A plurality of drive switches for over-driving are distributively arranged in a sense amplifier area, and a plurality of drive switches for restore operation are concentratively disposed at one end of a row of the sense amplifiers. A potential for over-driving is supplied using a meshed power line circuit. Through the use of the drive switches for over-driving, initial sense operation can be performed on data line pairs with a voltage having an amplitude larger than a data-line amplitude, allowing implementation of high-speed sense operation. The distributed arrangement of the drive switched for over-driving makes it possible to dispersively supply current in sense operation, thereby reducing a difference in sense voltage with respect to far and near positions of the sense amplifiers.